

Attorney Docket No. LKMP:112US
U.S. Patent Application No. 10/613,172
Reply to Office Action of November 30, 2004
RCE Dated: February 15, 2005

Amendments to the Specification

Please replace paragraph [0020] with the following amended paragraph:

[0020] The assembly may be covered by a flexible membrane, as illustrated in Figures 6A-6C. Figure 6A shows embodiment 210 comprising fully extended assembly 38 covered by membrane 40. Membrane 40 has an aperture 42 in the center, which is substantially closed when the assembly is fully extended. Figure 6B shows assembly 38 partially retracted, opening aperture 42. Figure 6C shows assembly 38 fully retracted, opening aperture 42 to its widest extent. ~~In some embodiments, membrane 40 is continuously attached to a hull (not shown) proximate to rim 250 and attached to pivot points 252 around opening 42. Then, as assembly 38 extends (Figure 6A), membrane 40 remains attached at points 252 and the portions of membrane 40 that were incident upon opening 42 flex/fold in an accordion-like fashion to take up the slack created by points 252 moving together. When assembly 38 retracts (Figure 6C), the membrane stretches between points 252. In an intermediate position (Figure 6B), membrane 40 may be partially stretched or may be partially flexed/folded.~~

Please replace paragraph [0025] with the following amended paragraph:

[0025] Figure 10 shows vessel 412 having passenger, payload, or instrument compartment 414. A variable hull section 410 is connected to the front and the back of the vessel. Assembly 438 (shown beneath a cutaway) is covered by flexible membrane 440. Assembly 438 expands and contracts to change the dimensions of the hull of the vessel. (Both front and rear assemblies are shown fully extended in Figure 10.) Fins 416, 420, and 418[[],] are constructed to allow assembly 438 to expand and contract while the fins are moved to any position. Vessel 412 can be an airship or a submersible. ~~Compartment 414 includes a hatch 422 and ports 424, both of which can be made fluid tight.~~

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Please replace paragraph [0027] with the following amended paragraph:

[0027] Figures 12, 12A, and 13 show a vessel 512 having an ellipsoidal assembly 538 that extends and retracts conformally. Figure 12 is a rear view of vessel 512 with assembly 538 (shown beneath a cutaway of membrane 540) in a fully expanded configuration. Passenger compartment 514 is connected to the lower portion of the airship. Horizontal stabilizers 520 and vertical stabilizers 516 are connected to the assembly, and move relative to the passenger, payload, or instrument compartment when the assembly extends or retracts. Fins 518 may be fixed in size or also composed of assemblies 538. They are free to move throughout the desired dynamic range regardless of the extent to which the hull assemblies are extended or retracted. As stated above, a flexible membrane covers the assemblies, is within the assemblies, or both. The membranes may be airtight, allowing the less dense fluid to be bounded by the membrane(s), or the less dense fluid may be held in containers within the membrane(s). Vessel 512 can be an airship or a submersible. ~~Compartment 514 includes a hatch 522 and ports 524, both of which can be made fluid tight.~~

Please replace paragraph [0028] with the following amended paragraph:

[0028] Figures 14 and 15 show vessel 612 comprising a spherical hull 610. The spherical hull is an assembly 638 (shown beneath a cutaway of membrane 640) covered by membrane 640. Passengers, payload, or instruments may be carried within compartment 614. As with previous embodiments, the less dense fluid may be contained within fluid tight membranes covering, within, or both covering and within the assembly. The less dense fluid may instead be held within containers within the hull. Vessel 612 can be an airship or a submersible. ~~Compartment 614 includes a hatch 622 and ports 624, both of which can be made fluid tight.~~